

(PCT Article 36 and Rule 70)

Date of submission of the demand	Date of completion of this report
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INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/EP2004/053355

Box No. I Basis of the report

1. With regard to the **language**, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.
- ☐ This report is based on translations from the original language into the following language _____, which is the language of a translation furnished for the purposes of:
- ☐ international search (Rule 12.3 and 23.1(b))
- ☐ publication of the international application (Rule 12.4)
- ☐ international preliminary examination (Rule 55.2 and/or 55.3)
2. With regard to the **elements** of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report)*:
- ☐ the international application as originally filed/furnished
- ☒ the description:
- pages 1-4 _____ as originally filed/furnished
- pages* _____ received by this Authority on _____
- pages* _____ received by this Authority on _____
- ☒ the claims:
- nos. _____ as originally filed/furnished
- nos.* _____ as amended (together with any statement) under Article 19
- nos.* 1-8 _____ received by this Authority on 30.01.2006 with letter of 27.01.2006
- nos.* _____ received by this Authority on _____
- ☒ the drawings:
- sheets 1/3-3/3 _____ as originally filed/furnished
- sheets* _____ received by this Authority on _____
- sheets* _____ received by this Authority on _____
- ☐ a sequence listing and/or any related table(s) – see Supplemental Box Relating to Sequence Listing.
3. ☐ The amendments have resulted in the cancellation of:
- ☐ the description, pages _____
- ☐ the claims, nos. _____
- ☐ the drawings, sheets/figs _____
- ☐ the sequence listing (*specify*): _____
- ☐ any table(s) related to sequence listing (*specify*): _____
4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).
- ☐ the description, pages _____
- ☐ the claims, nos. _____
- ☐ the drawings, sheets/figs _____
- ☐ the sequence listing (*specify*): _____
- ☐ any table(s) related to sequence listing (*specify*): _____

* If item 4 applies, some or all of those sheets may be marked "superseded."

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Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement		
1.	Statement		
	Novelty (N)	Claims <u>1-8</u>	YES
		Claims _____	NO
	Inventive step (IS)	Claims <u>1-8</u>	YES
		Claims _____	NO
	Industrial applicability (IA)	Claims <u>1-8</u>	YES
		Claims _____	NO
2.	Citations and explanations (Rule 70.7)		
1.	Reference is made to the following documents:		
	D1: EP-A-128 796		
	D2: US-A-4 259 620.		
2.	The application fails to satisfy the requirements of PCT Article 6 because claim 1 lacks clarity.		
2.1	Claim 1 attempts to set forth the method in an unclear manner, referring to the three phases of the DC motor and not to the converter switch.		
	<p>If reference is made only to the phase/windings of the motor, it is necessary also to take into account the effect of the freewheeling diodes, which always allows the winding current from a winding that is not connected by a switch to continue to flow, thereby also connecting the connectable end of said winding via the freewheeling diode to an input voltage.</p> <p>The freewheeling diodes are not disclosed in the present application or in document D1. However,</p> <p style="text-align: right;">/...</p>		

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	<p>said diodes are conventional and can be found in, for example, document D2.</p> <p>If the subject matter of the claims is interpreted in this light, that is to say only with phases (that is to say windings) of the DC motor, either document D1 or document D2 appears to anticipate the novelty of claims of this type although, with regard to the converter switch, the method disclosed by the application is not rendered obvious by the prior art known from D1 and D2.</p> <p>2.2 The meaning of the words "periodically switched" in claim 1 appears to be that a switch is periodically opened and closed (see paragraph 018 and paragraph 020). However, periodically switching a switch on and off does not appear to signify, <i>per se</i>, that said phase "is switched" between the two input voltages. Only by taking into account the freewheeling current flowing through the non-disclosed recovery diodes, could the phase be understood "to be switched".</p> <p>3. Document D1 is considered to be the prior art closest to the subject matter of claim 1 and differs from the known method in that a new switching state control system (see paragraphs 18 and 20 of the description) is used.</p> <p style="text-align: right;">/...</p>

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	<p>3.1 The subject matter of claim 1 (for example as clarified in paragraphs 18 and 20 of the description) is therefore novel (PCT Article 33(2)).</p> <p>3.2 The problem addressed by the present invention can consequently be regarded as that of improving the effectiveness of the system.</p> <p>3.3 The solution to the above problem, as proposed in claim 1 of the present application, involves an inventive step (PCT Article 33(3)). The reasons are as follows:</p> <p>Since neither document D1 nor document D2 contains anything to indicate such a control system, the solution according to the present claim 1 is non-obvious, even if D1 is read in combination with D2.</p> <p>3.4 Claims 2 to 8 are dependent on claim 1 and, in consequence, likewise satisfy the requirements of the PCT in respect of novelty and inventive step.</p>